

**Montana Board of Oil and Gas Conservation  
Environmental Assessment**

**Operator:** Pinnacle Gas Resources, Inc.  
**Well Name/Number:** Cox 05-15-08-41  
**Location:** SW NW Section 15 T8S R41E  
**County:** Big Horn, **MT;** **Field (or Wildcat)** Wildcat

**Air Quality**

(possible concerns)

Long drilling time: No, 2 to 3 days drilling time.

Unusually deep drilling (high horsepower rig): No, small single derrick drilling rig to drill to 1800' TD.

Possible H<sub>2</sub>S gas production: None anticipated.

In/near Class I air quality area: No Class I air quality area.

Air quality permit for flaring/venting (if productive) Yes, DEQ air quality permit required under 75-2-211.

Mitigation:

☒ Air quality permit (AQB review)

☐ Gas plants/pipelines available for sour gas

☐ Special equipment/procedures requirements

☐ Other: \_\_\_\_\_

Comments: Wells flaring methane gas temporarily during initial stages of production. Flaring of commercial quantities of gas is prohibited.

**Water Quality**

(possible concerns)

Salt/oil based mud: No, freshwater and freshwater mud system.

High water table: No high water table anticipated.

Surface drainage leads to live water: Yes, Anderson Creek an ephemeral tributary drainage to the Tongue River, location is in a small oxbow in Anderson Creek so that the location has Anderson Creek on 3 sides of this location.

Water well contamination: No, water well within ½ mile of this location. Only Springs are found less than ½ of a mile from this location. Surface casing hole will be drilled to about 180' and steel casing will be run and cemented to surface to protect ground waters.

Porous/permeable soils: Localized sandy rocky ground.

Class I stream drainage: No Class I stream drainages in the area.

Mitigation:

☐ Lined reserve pit

☒ Adequate surface casing

☐ Berms/dykes, re-routed drainage

☐ Closed mud system

☐ Off-site disposal of solids/liquids (in approved facility)

☐ Other: \_\_\_\_\_

Comments: Will use fresh water, native clay mud.

**Soils/Vegetation/Land Use**

(possible concerns)

Stream crossings: None anticipated. Will utilize existing ranch trails to access this well site.

High erosion potential: No high erosion potential due to the use of a small self leveling drilling rig.

Loss of soil productivity: No loss of soil productivity. Surface location appears to be grazing land.

Unusually large wellsite: No, small drill site 100'X120' location size required.

Damage to improvements: Slight, surface use appears to be grazing land.

Conflict with existing land use/values: Slight

Mitigation

☐ Avoid improvements (topographic tolerance)

☐ Exception location requested

☒ Stockpile topsoil

☐ Stream Crossing Permit (other agency review)

☒ Reclaim unused part of wellsite if productive

☐ Special construction methods to enhance reclamation

☐ Other \_\_\_\_\_

Comments: No special concerns for this site. Very small location and pit area.

Truck mounted rig does not require much location preparation. Drilling fluids will be allowed to dry in the unlined pits. Cuttings will be buried in the earthen pits, after being allowed to dry. Access will be over existing county roads and existing two track trails.

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## Health Hazards/Noise

(possible concerns)

Proximity to public facilities/residences: None nearby. Closest residence is about 3.5 miles to the southeast of this location.

Possibility of H<sub>2</sub>S: None anticipated.

Size of rig/length of drilling time: Small drilling rig/short 2 to 3 days drilling time.

Mitigation:

☐ Proper BOP equipment

☐ Topographic sound barriers

☐ H<sub>2</sub>S contingency and/or evacuation plan

☐ Special equipment/procedures requirements

☒ Other: Diverter will be used in place of a BOP.

Comments: A coalbed methane well needs to be dewatered to produce methane gas, consequently, this well will be drilled like a water well. No special concerns.

## Wildlife/recreation

(possible concerns)

Proximity to sensitive wildlife areas (DFWP identified): None identified.

Proximity to recreation sites: None in the immediate area. Closest recreation site would be the Tongue River Reservoir, about 3 miles to the west of this location.

Creation of new access to wildlife habitat: No

Conflict with game range/refuge management: No

Threatened or endangered Species: Listed species threatened or endangered is the Black Footed Ferret.

Mitigation:

- ☐ Avoidance (topographic tolerance/exception)
- ☐ Other agency review (DFWP, federal agencies, DSL)
- ☐ Screening/fencing of pits, drillsite
- ☐ Other: \_\_\_\_\_

Comments: Small wellsite should not impact Black Footed Ferrets which are associated with Prairie Dog towns. Tongue River Reservoir is closest public recreation area.

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### Historical/Cultural/Paleontological

(possible concerns)

Proximity to known sites: None identified

Mitigation

- ☐ avoidance (topographic tolerance, location exception)
- ☐ other agency review (SHPO, DSL, federal agencies)
- ☐ Other: \_\_\_\_\_

Comments: Location on fee surface.

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### Social/Economic

(possible concerns)

- ☒ Substantial effect on tax base
- ☐ Create demand for new governmental services
- ☐ Population increase or relocation

Comments: Exploration test well targeted Flowers/Goodale coal beds at 1800'. A single coalbed methane well is not able to dewater the coals alone and will probably require multiple wells to properly dewater the coals. As a stand alone well, this well does meet the statewide setback for a gas well. It is likely this well will not produce until included in multiple well program and that would require an approved Plan of Development, therefore no social or economic impacts are likely—cumulative effects on socio-economics of the region are described in 2003 Statewide EIS.

### Remarks or Special Concerns for this site

Well is a shallow coal bed methane test. Wells are drilled with a small rig and casing set through the coals. 5 ½" inch casing is cemented surface. Casing is perforated in the coals of interest. Partial de-watering is expected to reduce pressure and release methane gas to the cleat system; this partial de-watering is expected to reduce, but not eliminate water in the coal aquifer. The water quality in the coal bed aquifer wells is variable—this test well will provide water quality data for the tested interval.

### Summary: Evaluation of Impacts and Cumulative effects

Relatively minor impacts associated with this well, which cannot produce until included in an approved POD. Well is a wildcat part of ongoing development near Coal Creek

Project and could use existing production facilities. No impacts are expected which differs significantly from those described in the EIS.

I conclude that the approval of the subject Notice of Intent to Drill (does/**does not**) constitute a major action of state government significantly affecting the quality of the human environment, and (does/**does not**) require the preparation of an environmental impact statement.

Prepared by (BOGC): /s/ Steven Sasaki  
(title:) Chief Field Inspector  
Date: February 18, 2010

Other Persons Contacted:

Montana Bureau of Mines and Geology, Groundwater Information Center

(Name and Agency)  
Water wells in Big Horn County

(subject discussed)  
February 18, 2010  
(date)

US Fish and Wildlife, Region 6 website  
(Name and Agency)  
ENDANGERED, THREATENED, PROPOSED AND CANDIDATE SPECIES  
MONTANA COUNTIES, Big Horn County  
(subject discussed)

February 18, 2010  
(date)

If location was inspected before permit approval:

Inspection date: \_\_\_\_\_

Inspector: \_\_\_\_\_

Others present during inspection: \_\_\_\_\_